REPORT OF COMMITTEE

ON THE PLAN FOR

A SYSTEMATIC SANITARY SURVEY

OF THE

UNITED STATES.

BY JOHN S. BILLINGS, M. D., U. S. ARMY, WASHINGTON,
CHAIRMAN OF COMMITTEE.

SUBMITTED AT THE ANNUAL MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION IN BALTIMORE, NOVEMBER 10, 1875.

[*Reprinted from Vol. II. Public Health Papers of the American Public Health Association.*]

REPORT OF COMMITTEE ON THE PLAN FOR A SYSTEMATIC SANITARY SURVEY OF THE UNITED STATES.[1]

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The Committee appointed at the last meeting of this Association, "to prepare schedules for the purpose of collecting information with regard to the present condition of Public Hygiene in the principal towns and cities of the United States, and the laws and regulations, State and municipal, relating to the same, and to report at the next annual meeting," consists of twenty-four members.[1]

The plan pursued was to assign to each member of the Committee a branch of the subject, upon which he prepared a list of questions. These lists were then printed, and a copy of all of the printed lists was furnished to each member of the Committee, with a request for additions, corrections, and modifications. The lists were also submitted to two or three gentlemen not on the Committee, but who are known to be interested in the subject, and some valuable suggestions were obtained from them, and especially from Dr. A. A. Woodhull, United States Army, to whom thanks are due for his assistance. The lists with the corrections and additions having been returned, a fresh list was prepared, to include as far as possible the suggestions offered, and this list I have the honor to present to the Association as the result of the labors of the Committee. I take especial pleasure in stating that the members of the Committee have given time and attention to the subject, so that the schedules presented fairly represent the opinions of all the members. The question has of course arisen in the committee as to what should, or what can, be done towards obtaining

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[1] The list of this Committee is as follows: —

Doctor John S. Billings, Chairman, Washington, D. C.
Dr. H. B. Baker, Lansing, Mich.
Dr. A. N. Bell, New York.
Dr. Francis H. Brown, Boston, Mass.
Dr. S. C. Busey, Washington, D. C.
Dr. Wm. Clendenin, Cincinnati, Ohio.
Dr. Jerome Cochran, Mobile, Ala.
Dr. Josiah Curtis, Washington, D. C.
Dr. N. S. Davis, Chicago, Ill.
Hon. John Eaton, Commissioner of Education, Washington, D. C.
Dr. B. E. Fryer, Surgeon, U. S. Army.
Dr. Elisha Harris, New York.
Dr. E. Lloyd Howard, Baltimore, Md.
Dr. Ezra M. Hunt, Metuchen, N. J.
Dr. John L. LeConte, Philadelphia, Penn.
Dr. Thos. M. Logan, Sacramento, Cal.
Dr. F. Peyre Porcher, Charleston, S. C.
Dr. F. W. Riley, Surgeon, U. S. Marine Hospital Service.
Dr. John H. Rauch, Chicago, Ill.
Dr. Edward Shippen, Medical Inspector U. S. Navy.
Dr. J. A. Steuart, Baltimore, Md.
Dr. Stephen Smith, New York.
Gen'l E. L. Viele, New York.
Dr. C. B. White, New Orleans, La.

answers to these schedules. A few enthusiastic, hard-working, self-sacrificing men, who are willing to undertake any labor which they think will advance science and civilization, and who judge others by themselves, think that the association should at once begin the collection of data. In favor of this it may be observed that for the larger cities, where the collection of these data would be most difficult, the work has been already largely done, and is in print in the shape of Municipal Reports. On the other hand, some of the members of the Committee, who have had some personal experience of the difficulty of obtaining answers to questions which call for what a man knows, and not what he thinks, and who appreciate the fact that men do not usually work without some sufficient inducement, believe that it would be useless to undertake the task, fearing that it would fail as similar attempts have failed before. Whether the Association may decide to attempt to make any immediate use of the schedules, or not, it is hoped and believed that they will be found of interest and value as suggesting subjects for investigation by public health authorities. The schedules are much more full and go much more into details than those issued by the American Medical Association, or those presented by Dr. John Sutherland[1] and agreed to with but slight modifications by the International Statistical Congress at its meeting in London in 1861.

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[1] A proposal for a uniform scheme of sanitary statistics was presented by Dr. John Sutherland, at the fourth session of the International Statistical Congress, held in London, in July, 1860, which will be found, as amended after debate by the section, on page 276 of the Report of the Proceedings of that session, 4°, London, 1861.

"1. Statistics of mortality, sickness, and causes of mortality, arranged according to age, sex, class, and occupation. To include not only entire towns, but districts of towns, such as wards, arrondissements, and also streets, blocks of houses, culs de sac, courts, and the like.

"2. The same as regards local charitable institutions, hospitals, poorhouses, schools, common lodging-houses, and the like.

"3. The local climate to be tabulated, and with certified meteorological instruments.

"4. The geological formation, soil, and facility or otherwise of drainage.

"5. The area covered by connected houses, whether comprehended or not within the limits of the administrative or civic authorities.

"6. The length of a line inclosing this area.

"7. The amount of space occupied by buildings, and the vacant area, such as squares, streets, places, and the like.

"8. The length of streets —
  (*a*) Drained; (*b*) undrained.
  (*c*) Paved; (*d*) unpaved.

"9. The breadth of streets, with the general height of the houses to the top of the roof.

"10. Number of houses.
  Number of flats or stories per house.
  Number of rooms per house.
  Number of sleeping-rooms, with the cubical contents of each.
  Number of families, and of inmates.

"11. Character of houses as to —
  (*a*) Repair.
  (*b*) Cleanliness.
  (*c*) Ventilation and light.
  (*d*) Healthiness.
  (*e*) Water-supply.
  (*f*) Underground apartments used as dwellings, with the number of inhabitants in each.

The schedules of questions prepared by the committee of the American Public Health Association are intended to apply to cities and towns of 5,000

(*g*) Number of houses drained into a sewer.
Number of houses having water-closets.
Number of houses having cesspools.
(*h*) Number of windows opening to the front and rear of the house.
(*i*) The cubic contents of schoolroom, the greatest number of scholars, and the means of warming and ventilation.

"12. Supply of water to the population, and its source from —
(*a*) Rivers.
(*b*) Lake.
(*c*) Shallow wells.
(*d*) Springs.
(*e*) Waterworks.
(*f*) Tanks for rainwater.

"13. Annual proportionate consumption in the town of —
(*a*) Food.
(*b*) Drinks, with their kinds.

"14. Classification of Trades —

"*First Division.* — Trades and occupations, as to their effects on the individuals themselves.
I. Persons of rank or property, including manufacturing and trading capitalists.
II. Persons in learned professions, and persons practicing superior arts.
III. Persons actually engaged in the defense of the country, specifying rank and particular occupation.
IV. Persons engaged in the mercantile marine, or otherwise, on the sea, rivers, or canals.
V. Individuals personally engaged in occupations, trades, businesses, and manufactures, or others not embraced in former sections.
(*a*) Involving severe or moderate bodily exertion, or the reverse.
(*b*) Carried on in the open air, or in shops, warehouses, offices, or other confined places.
(*c*) Involving exposure to vapors or miasmata of any kind, or to any kind of dust (including all those usually deemed unhealthy from these causes).
(*d*) Involving the maintenance of a constrained position, or any local pressure.
(*e*) Involving an unusual amount of exposure to the weather, to heat or cold, or sudden alternations of heat and cold.

"*Second Division.* — Trades and occupations, as to their effects on the surrounding population.
I. Trades and occupations occasioning "nuisance, injury to health, or noise."
II. Trades occasioning neither of these.
III. Trades, the nuisance, injury to health, or noise of which can be removed or sufficiently diminished by suitable precautions.
IV. Trades, the nuisance, injury to health, or noise from which cannot be sufficiently diminished by any precautions.

"15. Interments, their cost, and costs of sickness.

"16. Statistics of health, sickness, and mortality in the several orders of schools.
(*a*) Results of whole and half-time teaching on the physical and intellectual energies of the young previous to mature development.
(*b*) Results of special gymnastic exercises — as boat rowing, drilling, cricket, football, quoits, and such like.
(*c*) Results of gymnastic exercises as practiced by various classes in Sweden.
(*d*) Topographical site and construction of school and class rooms, their drainage, ventilation, and light; and also the cubic breathing space of the dormitories, in relation to the number of boys or girls sleeping therein.
(*e*) The extent and character of the playgrounds and covered sheds for exercise in wet weather."

inhabitants and upwards, and there are about 325 such cities in the United States.

If it is desired to extend the work to smaller towns, or, as some members of the committee suggest, to counties, the schedules are so framed as to permit of so doing with but slight modifications.

It is unnecessary to enlarge upon the interest and value which the information called for by these questions would have, if collected with any reasonable degree of completeness, and properly collated. It would establish the foundations of a National Public Hygiene in this country, and would be a landmark from which future progress could be estimated. And until some such sanitary survey is accomplished, State Medicine in this country cannot take rank as a science, but must rest mainly upon individual opinion and hypotheses, as it now does.

Whether this Association should undertake the work through its own officers, is the question now presented. It will require much time and labor, and some money, but if successfully performed, the result will be well worth the expenditure.

LIST OF SCHEDULES.

A. *Location, Population, and Climate.*
B. *Topography and Geology.*
C. *Water Supply.*
D. *Drainage and Sewerage.*
E. *Streets and Public Grounds.*
F. *Habitations.*
G. *Gas and Lighting.*
H. *Garbage and Excreta.*
I. *Markets.*
K. *Slaughter Houses and Abattoirs.*
L. *Manufactories and Trades.*
M. *Public School Buildings.*
N. *Hospitals and Public Charities.*
O. *Police and Prisons.*
P. *Fire Establishments, Alarms, Engines, etc.*
Q. *Cemeteries and Burial.*
R. *Public Health Laws and Regulations, Official and Municipal.*
S. *Registration and Statistics of Disease.*
T. *Quarantine.*

The schedules of inquiry comprise between 500 and 600 questions and statements. The following, marked A, B, and N, illustrate the method[1]: —

SCHEDULE *A.*

LOCATION, POPULATION, AND CLIMATE.

Name of city, county, and state.
What is its latitude?
What is its longitude?

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[1] The sixteen other schedules are omitted in this volume, because space is limited.

What is its general altitude above sea level?
What is the altitude above some specific point?
When was the city founded?
When was it incorporated?
Have its boundaries been enlarged?
What was its population in 1860?
What was its population in 1870?
What is its present population?
What is the relative proportion of native and foreign, European, African, Asiatic?
Have meteorological observations been regularly conducted in the city?
If so, by whom and for how long?
Have they been published? If so, where?

The following information is desired in the form of tables, to include a period of twenty years if possible: Mean, maximum, and minimum temperature of each month; direction and velocity of the prevailing winds in each month; amount of rainfall; mean, maximum, and minimum height of barometer for each month (corrected to freezing point, but not to sea level); records of relative and absolute humidity, electricity, ozone; number of clear and cloudy days.

SCHEDULE *B.*

TOPOGRAPHY AND GEOLOGY.

(1) Is the country surrounding your city level, undulating, hilly, mountainous, or low or marshy?

(2) If hilly or mountainous, in what direction and at what distance from your city are the nearest hills or mountains?

(3) How much higher than the general level of your city are the mountains or hills near by?

(4) How many feet lower than the general level of your city are the lowest valleys or ravines near by?

(5) What modifications of meteorological conditions, and what other influences upon health in your city, are apparently due to topographical features of its immediate vicinity?

(6) Is your city surrounded by prairie, forest, market gardens, villages, or ordinary cultivated farms?

(7) Was the site of your city originally level, undulating, or hilly?

(8) To what extent was it traversed by ravines?

(9) How has the surface been materially changed, by grading, etc., from its original outline?

(10) What water-courses have been filled up, formed, changed, or modified?

(11) How many feet above the present ordinary level of your city is the point of greatest elevation?

(12) How many feet below the present ordinary level of your city is the lowest place in it?

(13) Toward what point or points of the compass is the general slope of the surface of your city?

(14) How many feet rise or fall, per mile, in each direction from the centre, or from any given point which you can conveniently name?

(15) In what part of your city, and how many acres of the inhabited portion, is what is known as "made land"?

(16) What streams of water pass through or by your city?

(17) What is the average width of each?

(18) What is the average depth of each?

(19) As regards each stream, is the current rapid, moderate, slow, or sluggish?

(20) To what extent are there natural or artificial falls of water, as over dams, within or near your city?

(21) What canal or race passes through or near an inhabited part of your city?

(22) Is the water in such canal usually clear, turbid, or muddy?

SCHEDULE *N.*

HOSPITALS AND PUBLIC CHARITIES.

(1) What hospitals or alms-houses are located in or near the city?

(2) Have descriptions been published of them? If so, where?

(3) Give for each hospital, infirmary, alms-house, and asylum the following data: location, nature of soil, direction and character of drainage, form, area of grounds, number of stories, number and size of wards, floor room per bed in wards, cubic space per bed, floor plans of building, no matter how rough if dimensions are given carefully.

(4) Heating and ventilation, mode of?

(5) Is it satisfactory? If not, why not?

(6) Water closets, how placed?

(7) How ventilated? Are they satisfactory?

(8) Of what material is the building constructed?

(9) Is it fire proof?

(10) What precautions are taken against fire?

(11) How is the hospital governed, by trustees, municipal board, religious order, or medical men?

(12) How are the governors appointed, by external authority, or by filling their own vacancies?

(13) By whom are the medical staff selected or appointed?

(14) Are there medical officers in the institution, night and day?

(15) What are the titles of the attaches? number of each? how are they appointed?

(16) To what extent do medical men control the management of the hospital?

(17) Who admits and who discharges patients?

(18) Is a record of patients, their diseases and results of treatment kept?

(19) Does the hospital publish or make reports?

(20) What was the original cost of the building?

(21) What is the annual average cost of repairs?

(22) What is the annual average cost of pay of employees?

(23) What is the annual average cost of food?

(24) What is the annual average cost of medicines and apparatus?

(25) What is the annual cost of fuel?

(26) Is the hospital connected with a medical school?

(27) Is there an out-door dispensary connected with it?

(28) What was the number of cases treated during the past year?

(29) Have any cases of hospital zymotic diseases, such as erysipelas, pyæmia, puerperal disease, etc., occurred?

(30) If so, were they confined to one ward?

(31) If not so confined, has any epidemic or endemic influence manifested itself in the neighborhood?

(32) Is the hospital accommodation sufficient for the wants of the city?

(33) Please furnish a copy of the rules and regulations of the hospital.

(34) Is there any dispensary or its equivalent, not connected with a hospital?

(35) If so, furnish rules, regulations, and statistics or reports.

(36) Are there any hospitals specially used for *contagious diseases*, and separated from other general hospitals? or is the *quarantine* hospital of the port used as the "pest hospital" of the city?

(37) What are the facilities for treating poor sick in their own houses, especially as to nurses and special diet?